REMARKS

Entry of the foregoing amendments is respectfully requested.

Summary of Amendments

Upon entry of the foregoing amendments, claim 22 is amended, claims 24, 25 and 43 are cancelled and claims 44-46 are added, whereby claims 22, 23, 26-42 and 44-46 will be pending, with claims 22 and 44 being independent claims.

Support for the new and amended claims can be found throughout the present specification (see, for example, pages 1-3) and in the cancelled claims.

Applicant emphasizes that the amendments to claim 22 and the cancellation of claims 24, 25 and 43 are without prejudice or disclaimer, and Applicant expressly reserves the right to prosecute the cancelled claims and the amended claim in its original, unamended form in one or more continuation and/or divisional applications.

Summary of Office Action

As an initial matter, Applicant notes with appreciation that the Examiner has withdrawn the finality of the previous Office Action and has withdrawn all rejections set forth therein.

Claims 22-25, 28, 29, 33-41 and 43 are newly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sondhe et al., U.S. Patent No. 5,340,652 (hereafter "SONDHE"), in view of Markusch et al., U.S. Patent No. 5,340,652 (hereafter "MARKUSCH").

Claims 30-32 are newly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SONDHE in view of MARKUSCH and in view of Althaus, U.S. Patent No. 4,950,792 (hereafter "ALTHAUS").

Claims 26, 27 and 42 are newly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SONDHE in view of MARKUSCH and in view of Motsinger et al., U.S. Patent No. 3,217,536 (hereafter "MOTSINGER").

Response to Office Action

Reconsideration and withdrawal of the rejections of record are respectfully requested, in view of the foregoing amendments and the following remarks.

Response to Rejection of Claims 22-25, 28, 29, 33-41 and 43 under 35 U.S.C. § 103(a)

Claims 22-25, 28, 29, 33-41 and 43 are newly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SONDHE in view of MARKUSCH. The rejection essentially alleges that SONDHE discloses an article comprising an epoxy base coat and a urethane top coat that can be applied at ambient temperatures to the epoxy base coat, but concedes that SONDHE fails to disclose the presently claimed urethane topcoat. The rejection further asserts that MARKUSCH discloses a polyurethane topcoat that is characterized by its ability to be adjusted with respect to its viscosity in response to changing temperature and humidity conditions and allegedly satisfies the corresponding properties recited in the rejected claims, wherefore it would allegedly have been obvious to one of ordinary skill in the art to replace the urethane topcoat of SONDHE by the polyurethane composition of MARKUSCH.

Applicant respectfully traverses this rejection. In particular, it is apparent that the required property profiles of the polyurethanes of SONDHE and the polyurethanes of MARKUSCH are completely different. For this reason alone, one of ordinary skill in the are would not be prompted (but rather discouraged) to combine the disclosures of SONDHE and MARKUSCH.

For example, the polyurethanes of SONDHE are to be used specifically as topcoats for road lane markers and therefore, must have exceptional weatherability, abrasion resistance and non-yellowing characteristics (see, e.g., abstract of SONDHE). On the other hand, the polyurethanes of MARKUSCH are to be used for the production of polyurethane geotextile materials useful as liners for ditches and canals. Specifically, in column 2, lines 15-52 thereof, MARKUSCH states (emphasis added):

> U.S. Pat. No. 5,421,677 ("the '677 patent") which is directed to an improved process of forming a ditch liner discloses the use of a mixture composed of one or more polyisocyanates, a polyol mixture, one or more fillers, and a catalyst. The mixture of the '677 patent is dispensed on a geotextile, thereby forming a liquid polyurethane impregnated geotextile composite. The liquid polyurethane impregnated geotextile composite is then placed over the surface of an area to be lined and allowed to cure, thereby forming a polyurethane/geotextile composite. The mixture disclosed in the '677 patent cures in a reasonable amount of time and under varying temperature conditions. However, the viscosity of that mixture varies widely.
>
> More specifically, at high temperatures (e.g., 30° -50° C.), the mixture of the '677 patent has an extremely low viscosity. In a ditch liner application, such a low viscosity mixture will tend to flow to the bottom of the ditch. As a result, an uneven ditch liner having very little binder to adhere to the substrate and protect the top of the ditch from seepage is formed. Excess binder settles on the bottom of the ditch. When thick layers of the still liquid polyurethane are formed on the bottom of a ditch, those layers have a tendency to foam under humid conditions. Such foaming weakens the liner by reducing water impermeability.
>
> For the foregoing reasons, it would be desirable to develop a polyurethane composition the viscosity of which may be readily adjusted to obtain optimum performance even when the temperature and humidity at the site where it is being used are not constant. Specifically, a polyurethane composition that maintains the desirable low viscosity of the starting materials but also has a mix viscosity that can be increased to a level such that run off on vertical surfaces is avoided would be

advantageous. Additionally, it would be desirable to develop a composite made with such a polyurethane composition, so that a ditch lined with the composite will be sufficiently protected at the outer edges that seepage is substantially avoided and no excess polyurethane composition will settle on the bottom of the ditch.

Further, in col. 3, lines 16-22 and in col. 3, line 58 – col. 4, line 15 thereof MARKUSCH states (emphasis added):

> The polyurethane-forming reaction mixture characterized by adjustable mix viscosity remains flowable during application, e.g., while it is being applied to a substrate. By "flowable", it is meant that the polyurethane-forming composition with adjustable mix viscosity is still a self leveling liquid having a viscosity low enough to be applied evenly on a substrate such as a geotextile, but also high enough that after it is applied to the substrate, run-off on vertical surfaces such as those of a ditch and/or canal is avoided.
>
> ... The polyurethane geotextile composites of the present invention are made by impregnating a geotextile with the above-described polyurethane forming mixture having adjustable mix viscosity and allowing the polyurethane composition to cure.
>
> The invention is also directed to a ditch or canal lined with a polyurethane geotextile composite which is produced by dispensing or impregnating a polyurethane-forming mixture having adjustable mix viscosity onto or into a geotextile, laying that geotextile onto a surface of a ditch or canal before the mixture has fully cured, conforming the polyurethane-forming mixture-containing geotextile to the shape of the surface of the ditch or canal, and allowing the polyurethane composition to fully cure to form a composite which acts as a leakproof liner.
>
> As used herein, the term "geotextile" refers to any woven or non-woven porous blanket or mat which is produced from natural or synthetic fibers. The terms "ditch" and "canal" are used interchangeably and can refer to any liquid-carrying surface having a depression therein or a sloped side.
>
> Geotextiles are used primarily to line earthen surfaces. Such liners may also be used to line roofs, ponds, reservoirs, landfills, underground storage tanks, canals or ditches. Examples of geotextiles include woven or non-woven polypropylene, polyester, jute and cotton fabrics.

Accordingly, the polyurethanes of MARKUSCH are used for a purpose, i.e., impregnation of a fabric which is used as a ditch liner, etc. which has absolutely nothing to do with the use according to SONDHE, i.e., as topcoats for road lane markers.

Moreover, since the polyurethanes of MARKUSCH clearly are not required to have the properties pointed out by SONDHE, i.e., exceptional weatherability, abrasion resistance and non-yellowing characteristics, there is absolutely no reason for one of ordinary skill in the art to assume that they would be suitable as a reasonable replacement for the polyurethanes of SONDHE.

It further is to be taken into account out that from, e.g., col. 9, lines 22-64 of MARKUSCH it becomes clear that the polyurethanes described therein must not cure too rapidly to allow sufficient time for the fabric (geotextile) to be impregnated (penetrated) therewith, the impregnated fabric being then cut and applied to the surface of a ditch or canal while the polyurethane is still in an at least partially uncured state.

In contrast to the polyurethanes of MARKUSCH, the polyurethanes of SONDHE are not intended to cure not too rapidly, but are required to cure as quickly as possible. For example, in col. 21, lines 9-35 SONDHE states (emphasis added):

> The foregoing examples illustrate the advantages of the present invention. Specifically, the present invention has no volatile organic components. The organic structure when based on aliphatic compositions rather than aromatic compositions has superior weatherability and resistance to discoloration. The intermediate isocyanate chemistry results in a urethane which is flexible and yet tough to very rigid by varying the chain length of either the intermediate or the isocyanate prepolymers or monomers. The resulting composition has excellent physical properties for the intended use as well good chemical properties. The method of application results in a permanent chemical fusion between the layers. The epoxy layer has good wetability, while the urethane layer allows for a short tack free time. The short tack free time limits the amount of time that dirt can make it onto the surface, and shortens the time before cars can drive on the surface. The chemical fusion between the layers can be understood as the chemical reaction between the two layers which becomes a part of the polymeric structure having no discrete interface, but a form of crosslinking between the layers. It is possible to drive over the present composition within 5 to 10 minutes without harming the composition, whereas in contrast, in the past it has been necessary to wait a cure time of 60 to 75 minutes.

This is further confirmed by col. 13, lines 29-36 of SONDHE (emphasis added):

> The two-part solvent free, generally liquid, urethane system which can be stored in separate containers is mixed in any convention manner, and generally applied under pressure to the top of the previously applied epoxy composition. Upon mixing, the two-part urethane system will immediately commence reaction and hence it is immediately applied to the base layer before any substantial crosslinking or curing reaction occurs. Application can be in any conventional manner as by brushing, spraying, and the like. The thickness of the urethane layer will depend upon the surface being treated and the degree of protection sought and with regard to road lane marker, the urethane is generally applied at a thickness of from about 0.5 to about 10 mils, desirably from about 0.75 to about 5 mils, and preferably 2 or 3 mils.

The difference in required curing times is yet another reason why one of ordinary skill in the art wishing to replace the polyurethane used in the process of SONDHE would not have an apparent reason (but would rather be discouraged) to use a polyurethane according to MARKUSCH.

Regarding the fact that former claims 25 and 43 (and now independent claims 22 and 44) recite (*inter alia*) that the synthetic resin is applied onto the polyurethane gel coat material Applicant notes that the Examiner still appears to rely on a single word in a single sentence of SONDHE, i.e., the word "generally" in the sentence in col. 13, lines 5-7 of SONDHE: "Since the epoxy composition has a good bonding strength, it is generally utilized as a base or substrate interface layer". Even if one were to assume, *arguendo*, that this sentence suggests that alternatively, the epoxy layer can be used as the top layer and the polyurethane layer can be used as the base layer it is not seen that any advantage can be obtained by reversing the sequence of layers. SONDHE neither suggests that the polyurethane layer provides good adhesion to a substrate (bonding strength) or any other property desirable for a base layer nor suggests that the epoxy layer exhibits good

weatherability and abrasion-resistance or any other property that is desirable for a top layer but does point out that the epoxy layer has a good bonding strength and does point out that the polyurethane layer has good weatherability and abrasion-resistance. Accordingly, even if SONDHE were assumed to not exclude the use of the epoxy layer as a top layer and the polyurethane layer as a base layer on a substrate it cannot reasonably be denied that SONDHE fails to set forth any advantages that may be obtained thereby. In other words, SONDHE fails to provide an apparent reason for one of ordinary skill in the art to use the epoxy layer as a top layer and the polyurethane layer as a base layer. On the contrary, it is apparent that with a corresponding (reversed) arrangement one would forfeit all of the advantages pointed out by SONDHE, i.e., the good bonding to substrate surfaces provided by the epoxy layer (as a top layer it would not come into direct contact with the substrate) and the good weatherability resistance and good abrasion resistance of the polyurethane layer (as a base layer it would be covered and protected by the epoxy layer and thus, would neither be subjected to abrasive forces nor to weather-related stresses). In other words, SONDHE clearly fails to provide an apparent reason for one of ordinary skill in the art to reverse the order of layers taught therein.

In addition to the above facts it is pointed out that claims 22 and 44 submitted herewith further recite that the process is an in-mold process, i.e., is carried out by using a mold into which a polyurethane gel coat material is introduced, followed by the application of a synthetic resin that comprises an epoxy resin and/or a vinyl ester resin onto the polyurethane gel coat material. Neither SONDHE nor MARKUSCH teaches or suggests a process wherein a mold is used. In fact, neither the process of SONDHE nor

the process of MARKUSCH can reasonably be carried out by using a mold. This is yet another reason why SONDHE in view of MARKUSCH is unable to render obvious the subject matter of any of the claims submitted herewith.

Further, as set forth in the third paragraph of page 1 of the instant specification, in an in-mold process the gel coat system, after the mixing of its reaction components, is introduced into a mold within the processing time (pot life). The layer obtained after the gelling is sufficiently mechanically stable to not be damaged during the application of the synthetic resin.

As set forth in the fourth paragraph of page 1 of the instant specification, in order to ensure adequate adhesion between (i) epoxy resin and/or vinyl ester resin (synthetic resin) and (ii) gel coat, the coating with synthetic resin must take place within the lamination time of the gel coat. Subsequently, the synthetic resin and gel coat are cured completely.

The problems with the systems known from the prior art are set forth in particular, in the passage starting in the middle of page 2 to page 4, first paragraph, of the instant specification. None of the documents relied upon by the Examiner addresses these problems, let alone suggests any solution therefor. On the contrary, as pointed out above, SONDHE requires a polyurethane that cures as quickly as possible (which would make it virtually impossible to carry out the claimed process). MARKUSCH on the other hand, fails to teach or suggest a polyurethane with a relatively short tack-free time.

Applicant submits that for at least all of the foregoing reasons, the Examiner has failed to establish a *prima facie* case of obviousness of the subject matter of any of the instant claims in view of SONDHE and MARKUSCH. Accordingly, withdrawal of the instant rejection is warranted, which action is respectfully requested.

Response to Rejection of Claims 30-32 under 35 U.S.C. § 103(a)

Dependent claims 30-32 are newly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SONDHE in view of MARKUSCH and in view of ALTHAUS. The rejection concedes that SONDHE and MARKUSCH fail to disclose the preferred aromatic amine recited in the rejected claims but alleges that ALTHAUS cures this deficiency of SONDHE and MARKUSCH.

Applicant respectfully traverses this rejection as well. In particular, ALTHAUS is unable to cure the deficiencies of SONDHE and MARKUSCH (and neither does the Examiner make any allegations in this regard) and for this reason alone, the instant rejection is without merit.

Response to Rejection of Claims 26, 27 and 42 under 35 U.S.C. § 103(a)

Claims 26, 27 and 42 are newly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SONDHE in view of MARKUSCH and in view of MOTSINGER. The rejection concedes that SONDHE and MARKUSCH fail to disclose the elements recited in claims 26, 27 and 42 but essentially alleges that MOTSINGER cures this deficiency of SONDHE and MARKUSCH.

Applicant respectfully traverses this rejection as well. In particular, it is pointed out again that there is no motivation to combine the teachings of SONDHE and MOTSINGER because the latter document is non-analogous art with respect to the former document (and MARKUSCH). The test for non-analogous art is first whether the art is within the field of the inventor's endeavor and, if not, whether it is reasonably pertinent to the particular problem with which the inventor was involved. *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979). "A reference is reasonably pertinent if, even though it may be in a different field" of endeavor, it logically would have commended itself to an inventor's attention in considering his problem "because of the matter with which it deals." *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992).

There can be no reasonable dispute that SONDHE (relating to epoxy resin/polyurethane laminates for use as road lane markers; see, e.g., abstract of SONDHE) and MOTSINGER (relating to a force vector transducer and mentioning (foamed) polyurethanes and polyester or epoxy resins only generically as examples of suitable materials for the outer surface of the inner shell and the outer shell of the force vector transducer taught therein) are not from the same field of endeavor. There can also no dispute that the required property profiles of materials that may be used for making road lane markers on the one hand and of materials for making force vector transducers on the other hand are entirely different.

It further is pointed out that MOTSINGER fails to cure the deficiencies of SONDHE and MARKUSCH set forth above. Merely by way of example, MOTSINGER fails to teach or suggest carrying out the processes of SONDHE and MARKUSCH by using a mold.

Applicant submits that for at least all of the foregoing reasons and the additional reasons set forth in the responses to the previous Office Action, SONDHE, MARKUSCH and MOTSINGER are unable to render obvious the subject matter of any of the claims submitted herewith, wherefore withdrawal of the instant rejection is respectfully requested as well.

CONCLUSION

In view of the foregoing, it still is believed that all of the claims in this application are in condition for allowance, wherefore an early issuance of the Notices of Allowance and Allowability is again respectfully solicited. Should there be any issues that can be resolved during a teleconference the Examiner is respectfully invited to contact the undersigned at the telephone number indicated below.

Respectfully submitted,
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